

Project: Lea County, NM (NAD-83)
 Site: Thistle Unit Sec 22-27 Trac Pad
 Well: Thistle Unit 115H
 Wellbore: OH
 Design: Plan #2

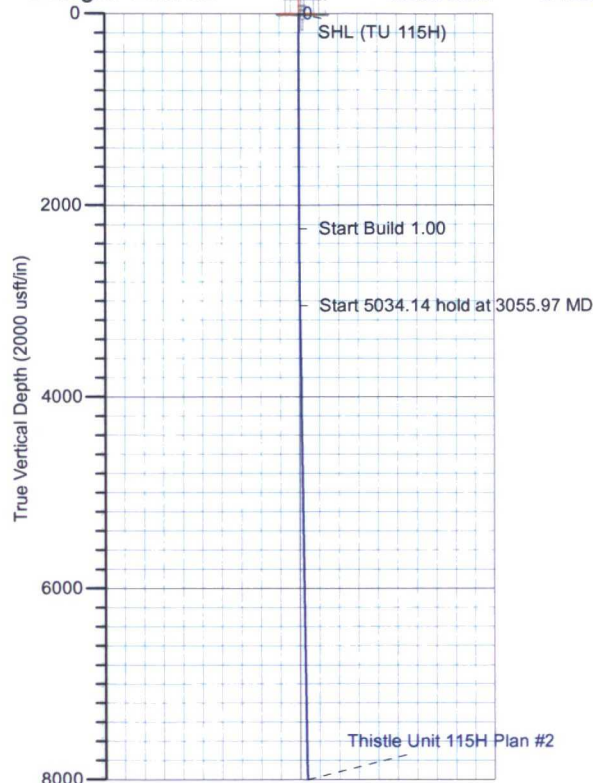
3713.2' GE +23.5' KB @ 3736.70usft
 Ground Level: 3713.20



Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 6.42°
 Magnetic Field
 Strength: 48166.4snT
 Dip Angle: 60.12°
 Date: 9/19/2017
 Model: HDGM

PROJECT DETAILS: Lea County, NM (NAD-83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

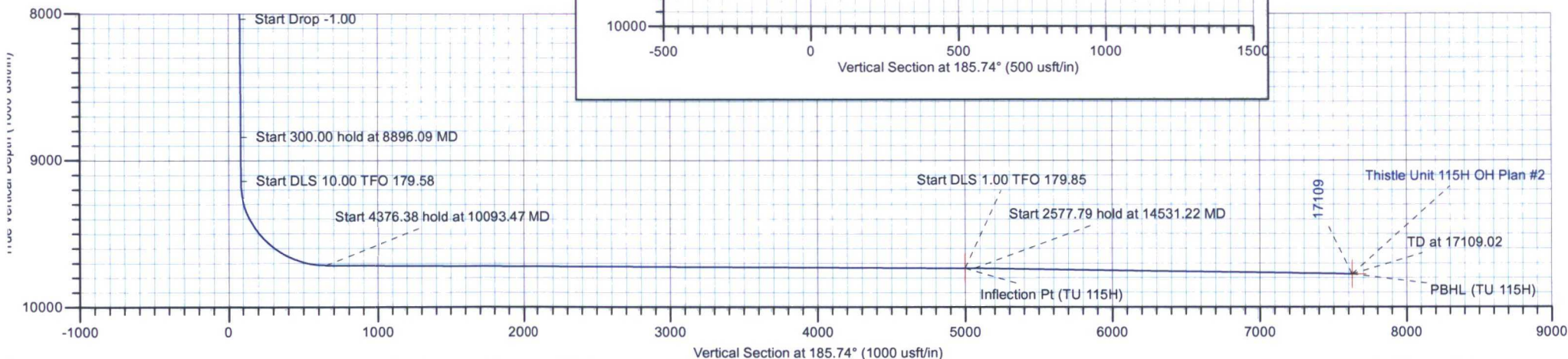
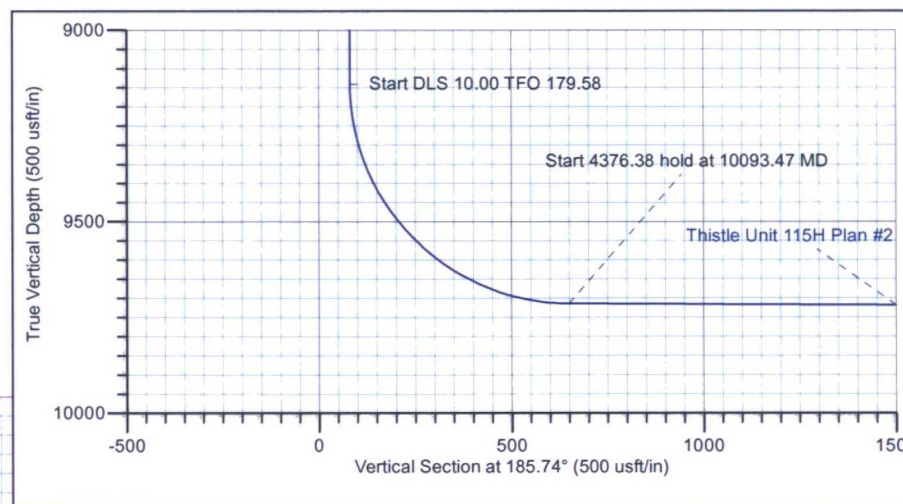


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2250.00	0.00	0.00	2250.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
3055.97	8.06	270.00	3053.32	0.00	-56.59	1.00	270.00	5.66	Start 5034.14 hold at 3055.97 MD
8090.11	8.06	270.00	8037.73	0.00	-762.41	0.00	0.00	76.29	Start Drop -1.00
8896.09	0.00	0.00	8841.05	0.00	-819.00	1.00	180.00	81.95	Start 300.00 hold at 8896.09 MD
9196.09	0.00	0.00	9141.05	0.00	-819.00	0.00	0.00	81.95	Start DLS 10.00 TFO 179.58
10093.47	89.74	179.58	9714.00	-570.32	-814.77	10.00	179.58	648.99	Start 4376.38 hold at 10093.47 MD
14469.85	89.74	179.58	9734.00	-4946.54	-782.35	0.00	0.00	5000.00	Start DLS 1.00 TFO 179.85
14531.22	89.12	179.58	9734.61	-5007.91	-781.90	1.00	179.85	5061.02	Start 2577.79 hold at 14531.22 MD
17109.02	89.12	179.58	9774.00	-7585.33	-762.87	0.00	0.00	7623.60	TD at 17109.02

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Inflection Pt (TU 115H)	9734.00	-4946.54	-782.35	32° 16' 58.6548 N	103° 33' 36.6424 W
PBHL (TU 115H)	9774.00	-7585.33	-762.87	32° 16' 32.5424 N	103° 33' 36.6371 W
SHL (TU 115H)	0.00	0.00	0.00	32° 17' 47.5452 N	103° 33' 27.1127 W



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301

Plan: Plan #2 (Thistle Unit 115H/OH)
 Thistle Unit Sec 22-27 Trac Pad
 Created By: Dustin Ault
 Date: 14:32, September 20 2017

Project: Lea County, NM (NAD-83)
Site: Thistle Unit Sec 22-27 Trac Pad
Well: Thistle Unit 115H
Wellbore: OH
Design: Plan #2



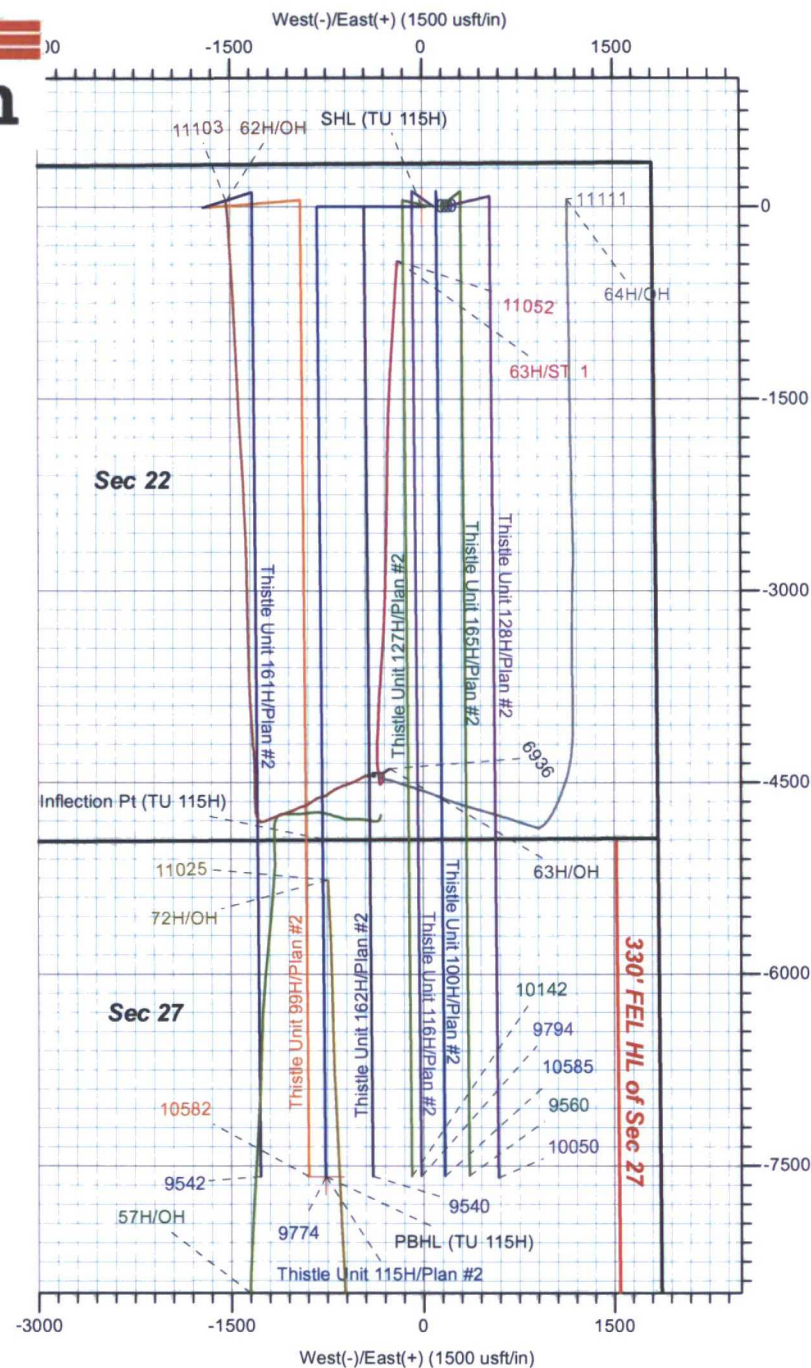
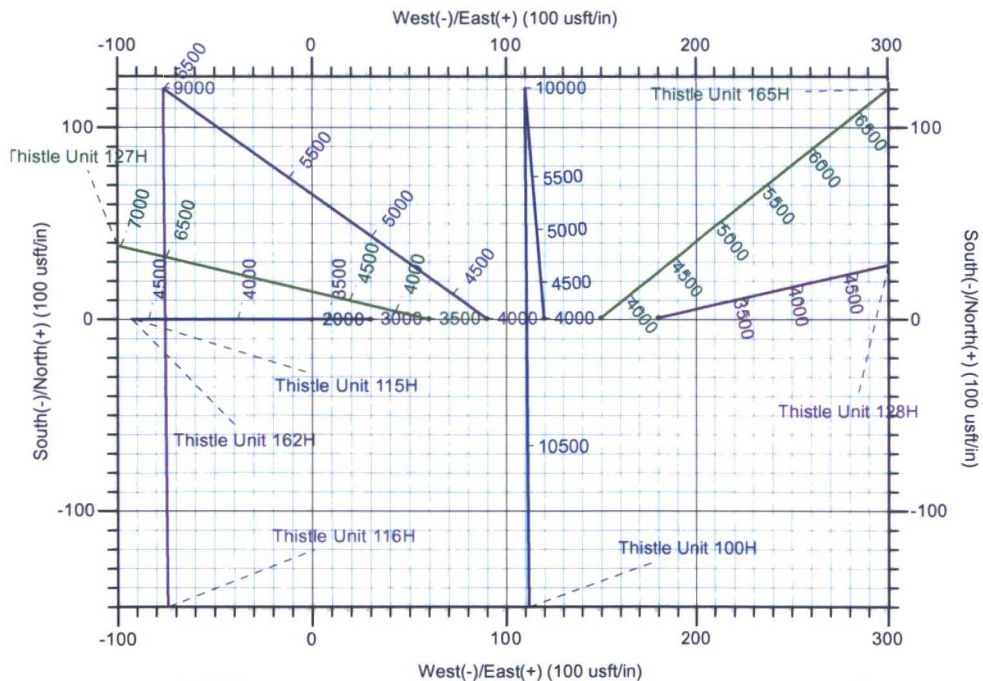
**Magnetic Field
Strength: 48166.4snT
Dip Angle: 60.12°
Date: 9/19/2017
Model: HDGM**

PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone



SECTION DETAILS										Target
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2250.00	0.00	0.00	2250.00	0.00	0.00	0.00	0.00	0.00		
3055.97	8.06	270.00	3053.32	0.00	-56.59	1.00	270.00	5.66		
8090.11	8.06	270.00	8037.73	0.00	-762.41	0.00	0.00	76.29		
8896.09	0.00	0.00	8841.05	0.00	-819.00	1.00	180.00	81.95		
9196.09	0.00	0.00	9141.05	0.00	-819.00	0.00	0.00	81.95		
10093.47	89.74	179.58	9714.00	-570.32	-814.77	10.00	179.58	648.99		
14469.85	89.74	179.58	9734.00	-4946.54	-782.35	0.00	0.00	5000.00		
9 14531.22	89.12	179.58	9734.61	-5007.91	-781.90	1.00	179.85	5061.02		
10 17109.02	89.12	179.58	9774.00	-7585.33	-762.87	0.00	0.00	7623.60	PBHL (TU 115H)	

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Inflection Pt (TU 115H)	9734.00	-4946.54	-782.35	467534.58	780270.46	32° 16' 58.6548 N	103° 33' 36.6424 W
PBHL (TU 115H)	9774.00	-7585.33	-762.87	464895.79	780289.94	32° 16' 32.5424 N	103° 33' 36.6371 W
SHL (TU 115H)	0.00	0.00	0.00	472481.12	781052.81	32° 17' 47.5452 N	103° 33' 27.1127 W



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301

Plan: Plan #2 (Thistle Unit 115H/OH)
Thistle Unit Sec 22-27 Trac Pad
Created By: Dustin Ault Date: 14:34, September 20 2017
Date:

Devon Energy

Lea County, NM (NAD-83)

Thistle Unit Sec 22-27 Trac Pad

Thistle Unit 115H

OH

Plan: Plan #2

Standard Planning Report

20 September, 2017

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 115H
Company:	Devon Energy	TVD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Project	Lea County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Thistle Unit Sec 22-27 Trac Pad			
Site Position:		Northing:	472,548.43 usft	Latitude:	32° 17' 48.4331 N
From:	Map	Easting:	777,932.69 usft	Longitude:	103° 34' 3.4563 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well	Thistle Unit 115H					
Well Position	+N/-S	-67.31 usft	Northing:	472,481.12 usft	Latitude:	32° 17' 47.5452 N
	+E/-W	3,120.12 usft	Easting:	781,052.81 usft	Longitude:	103° 33' 27.1127 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,713.20 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/19/2017	6.83	60.12	48,166

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	185.74

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,250.00	0.00	0.00	2,250.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,055.97	8.06	270.00	3,053.32	0.00	-56.59	1.00	1.00	0.00	270.00	
8,090.11	8.06	270.00	8,037.73	0.00	-762.41	0.00	0.00	0.00	0.00	
8,896.09	0.00	0.01	8,841.05	0.00	-819.00	1.00	-1.00	0.00	180.00	
9,196.09	0.00	0.01	9,141.05	0.00	-819.00	0.00	0.00	0.00	0.01	
10,093.47	89.74	179.58	9,714.00	-570.32	-814.77	10.00	10.00	20.01	179.58	
14,469.85	89.74	179.58	9,734.00	-4,946.54	-782.35	0.00	0.00	0.00	0.00	
14,531.22	89.12	179.58	9,734.61	-5,007.91	-781.90	1.00	-1.00	0.00	179.85	
17,109.02	89.12	179.58	9,774.00	-7,585.33	-762.87	0.00	0.00	0.00	0.00	PBHL (TU 115H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 115H
Company:	Devon Energy	TVD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (TU 115H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,250.00	0.00	0.00	2,250.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.00									
2,300.00	0.50	270.00	2,300.00	0.00	-0.22	0.02	1.00	1.00	0.00
2,400.00	1.50	270.00	2,399.98	0.00	-1.96	0.20	1.00	1.00	0.00
2,500.00	2.50	270.00	2,499.92	0.00	-5.45	0.55	1.00	1.00	0.00
2,600.00	3.50	270.00	2,599.78	0.00	-10.69	1.07	1.00	1.00	0.00
2,700.00	4.50	270.00	2,699.54	0.00	-17.66	1.77	1.00	1.00	0.00
2,800.00	5.50	270.00	2,799.16	0.00	-26.38	2.64	1.00	1.00	0.00
2,900.00	6.50	270.00	2,898.61	0.00	-36.83	3.69	1.00	1.00	0.00
3,000.00	7.50	270.00	2,997.86	0.00	-49.02	4.91	1.00	1.00	0.00
3,055.97	8.06	270.00	3,053.32	0.00	-56.59	5.66	1.00	1.00	0.00
Start 5034.14 hold at 3055.97 MD									
3,100.00	8.06	270.00	3,096.91	0.00	-62.77	6.28	0.00	0.00	0.00
3,200.00	8.06	270.00	3,195.92	0.00	-76.79	7.68	0.00	0.00	0.00
3,300.00	8.06	270.00	3,294.93	0.00	-90.81	9.09	0.00	0.00	0.00
3,400.00	8.06	270.00	3,393.95	0.00	-104.83	10.49	0.00	0.00	0.00
3,500.00	8.06	270.00	3,492.96	0.00	-118.85	11.89	0.00	0.00	0.00
3,600.00	8.06	270.00	3,591.97	0.00	-132.87	13.30	0.00	0.00	0.00
3,700.00	8.06	270.00	3,690.98	0.00	-146.89	14.70	0.00	0.00	0.00
3,800.00	8.06	270.00	3,790.00	0.00	-160.91	16.10	0.00	0.00	0.00
3,900.00	8.06	270.00	3,889.01	0.00	-174.93	17.50	0.00	0.00	0.00
4,000.00	8.06	270.00	3,988.02	0.00	-188.95	18.91	0.00	0.00	0.00
4,100.00	8.06	270.00	4,087.03	0.00	-202.97	20.31	0.00	0.00	0.00
4,200.00	8.06	270.00	4,186.04	0.00	-216.99	21.71	0.00	0.00	0.00
4,300.00	8.06	270.00	4,285.06	0.00	-231.01	23.12	0.00	0.00	0.00
4,400.00	8.06	270.00	4,384.07	0.00	-245.03	24.52	0.00	0.00	0.00
4,500.00	8.06	270.00	4,483.08	0.00	-259.05	25.92	0.00	0.00	0.00
4,600.00	8.06	270.00	4,582.09	0.00	-273.07	27.33	0.00	0.00	0.00
4,700.00	8.06	270.00	4,681.11	0.00	-287.10	28.73	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 115H
Company:	Devon Energy	TVD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	8.06	270.00	4,780.12	0.00	-301.12	30.13	0.00	0.00	0.00
4,900.00	8.06	270.00	4,879.13	0.00	-315.14	31.53	0.00	0.00	0.00
5,000.00	8.06	270.00	4,978.14	0.00	-329.16	32.94	0.00	0.00	0.00
5,100.00	8.06	270.00	5,077.15	0.00	-343.18	34.34	0.00	0.00	0.00
5,200.00	8.06	270.00	5,176.17	0.00	-357.20	35.74	0.00	0.00	0.00
5,300.00	8.06	270.00	5,275.18	0.00	-371.22	37.15	0.00	0.00	0.00
5,400.00	8.06	270.00	5,374.19	0.00	-385.24	38.55	0.00	0.00	0.00
5,500.00	8.06	270.00	5,473.20	0.00	-399.26	39.95	0.00	0.00	0.00
5,600.00	8.06	270.00	5,572.22	0.00	-413.28	41.36	0.00	0.00	0.00
5,700.00	8.06	270.00	5,671.23	0.00	-427.30	42.76	0.00	0.00	0.00
5,800.00	8.06	270.00	5,770.24	0.00	-441.32	44.16	0.00	0.00	0.00
5,900.00	8.06	270.00	5,869.25	0.00	-455.34	45.56	0.00	0.00	0.00
6,000.00	8.06	270.00	5,968.27	0.00	-469.36	46.97	0.00	0.00	0.00
6,100.00	8.06	270.00	6,067.28	0.00	-483.38	48.37	0.00	0.00	0.00
6,200.00	8.06	270.00	6,166.29	0.00	-497.40	49.77	0.00	0.00	0.00
6,300.00	8.06	270.00	6,265.30	0.00	-511.42	51.18	0.00	0.00	0.00
6,400.00	8.06	270.00	6,364.31	0.00	-525.44	52.58	0.00	0.00	0.00
6,500.00	8.06	270.00	6,463.33	0.00	-539.46	53.98	0.00	0.00	0.00
6,600.00	8.06	270.00	6,562.34	0.00	-553.48	55.39	0.00	0.00	0.00
6,700.00	8.06	270.00	6,661.35	0.00	-567.51	56.79	0.00	0.00	0.00
6,800.00	8.06	270.00	6,760.36	0.00	-581.53	58.19	0.00	0.00	0.00
6,900.00	8.06	270.00	6,859.38	0.00	-595.55	59.59	0.00	0.00	0.00
7,000.00	8.06	270.00	6,958.39	0.00	-609.57	61.00	0.00	0.00	0.00
7,100.00	8.06	270.00	7,057.40	0.00	-623.59	62.40	0.00	0.00	0.00
7,200.00	8.06	270.00	7,156.41	0.00	-637.61	63.80	0.00	0.00	0.00
7,300.00	8.06	270.00	7,255.42	0.00	-651.63	65.21	0.00	0.00	0.00
7,400.00	8.06	270.00	7,354.44	0.00	-665.65	66.61	0.00	0.00	0.00
7,500.00	8.06	270.00	7,453.45	0.00	-679.67	68.01	0.00	0.00	0.00
7,600.00	8.06	270.00	7,552.46	0.00	-693.69	69.42	0.00	0.00	0.00
7,700.00	8.06	270.00	7,651.47	0.00	-707.71	70.82	0.00	0.00	0.00
7,800.00	8.06	270.00	7,750.49	0.00	-721.73	72.22	0.00	0.00	0.00
7,900.00	8.06	270.00	7,849.50	0.00	-735.75	73.62	0.00	0.00	0.00
8,000.00	8.06	270.00	7,948.51	0.00	-749.77	75.03	0.00	0.00	0.00
8,090.11	8.06	270.00	8,037.73	0.00	-762.41	76.29	0.00	0.00	0.00
Start Drop -1.00									
8,100.00	7.96	270.00	8,047.52	0.00	-763.78	76.43	1.00	-1.00	0.00
8,200.00	6.96	270.00	8,146.68	0.00	-776.77	77.73	1.00	-1.00	0.00
8,300.00	5.96	270.00	8,246.04	0.00	-788.02	78.85	1.00	-1.00	0.00
8,400.00	4.96	270.00	8,345.58	0.00	-797.54	79.81	1.00	-1.00	0.00
8,500.00	3.96	270.00	8,445.28	0.00	-805.31	80.59	1.00	-1.00	0.00
8,600.00	2.96	270.00	8,545.10	0.00	-811.35	81.19	1.00	-1.00	0.00
8,700.00	1.96	270.00	8,645.00	0.00	-815.64	81.62	1.00	-1.00	0.00
8,800.00	0.96	270.00	8,744.97	0.00	-818.19	81.87	1.00	-1.00	0.00
8,896.09	0.00	0.01	8,841.05	0.00	-819.00	81.95	1.00	-1.00	0.00
Start 300.00 hold at 8896.09 MD									
8,900.00	0.00	0.00	8,844.96	0.00	-819.00	81.95	0.00	0.00	0.00
9,000.00	0.00	0.00	8,944.96	0.00	-819.00	81.95	0.00	0.00	0.00
9,100.00	0.00	0.00	9,044.96	0.00	-819.00	81.95	0.00	0.00	0.00
9,196.09	0.00	0.00	9,141.05	0.00	-819.00	81.95	0.00	0.00	0.00
Start DLS 10.00 TFO 179.58									
9,200.00	0.39	179.58	9,144.96	-0.01	-819.00	81.97	10.00	10.00	0.00
9,250.00	5.39	179.58	9,194.88	-2.53	-818.98	84.47	10.00	10.00	0.00
9,300.00	10.39	179.58	9,244.40	-9.40	-818.93	91.30	10.00	10.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 115H
Company:	Devon Energy	TVD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,350.00	15.39	179.58	9,293.12	-20.55	-818.85	102.38	10.00	10.00	0.00
9,400.00	20.39	179.58	9,340.69	-35.90	-818.73	117.65	10.00	10.00	0.00
9,450.00	25.39	179.58	9,386.73	-55.35	-818.59	136.98	10.00	10.00	0.00
9,500.00	30.39	179.58	9,430.91	-78.73	-818.42	160.23	10.00	10.00	0.00
9,550.00	35.39	179.58	9,472.88	-105.87	-818.22	187.22	10.00	10.00	0.00
9,600.00	40.39	179.58	9,512.33	-136.57	-817.99	217.74	10.00	10.00	0.00
9,650.00	45.39	179.58	9,548.95	-170.59	-817.74	251.56	10.00	10.00	0.00
9,700.00	50.39	179.58	9,582.47	-207.67	-817.46	288.43	10.00	10.00	0.00
9,750.00	55.39	179.58	9,612.62	-247.53	-817.17	328.06	10.00	10.00	0.00
9,800.00	60.39	179.58	9,639.19	-289.87	-816.85	370.15	10.00	10.00	0.00
9,850.00	65.39	179.58	9,661.97	-334.36	-816.52	414.39	10.00	10.00	0.00
9,900.00	70.39	179.58	9,680.78	-380.67	-816.18	460.43	10.00	10.00	0.00
9,950.00	75.39	179.58	9,695.49	-428.44	-815.83	507.92	10.00	10.00	0.00
10,000.00	80.39	179.58	9,705.97	-477.31	-815.46	556.51	10.00	10.00	0.00
10,050.00	85.39	179.58	9,712.16	-526.91	-815.10	605.83	10.00	10.00	0.00
10,093.47	89.74	179.58	9,714.00	-570.32	-814.77	648.99	10.00	10.00	0.00
Start 4376.38 hold at 10093.47 MD									
10,100.00	89.74	179.58	9,714.03	-576.86	-814.73	655.49	0.00	0.00	0.00
10,200.00	89.74	179.58	9,714.49	-676.85	-813.99	754.91	0.00	0.00	0.00
10,300.00	89.74	179.58	9,714.95	-776.85	-813.24	854.33	0.00	0.00	0.00
10,400.00	89.74	179.58	9,715.40	-876.84	-812.50	953.75	0.00	0.00	0.00
10,500.00	89.74	179.58	9,715.86	-976.84	-811.76	1,053.17	0.00	0.00	0.00
10,600.00	89.74	179.58	9,716.32	-1,076.84	-811.02	1,152.59	0.00	0.00	0.00
10,700.00	89.74	179.58	9,716.77	-1,176.83	-810.28	1,252.01	0.00	0.00	0.00
10,800.00	89.74	179.58	9,717.23	-1,276.83	-809.54	1,351.43	0.00	0.00	0.00
10,900.00	89.74	179.58	9,717.69	-1,376.83	-808.80	1,450.85	0.00	0.00	0.00
11,000.00	89.74	179.58	9,718.14	-1,476.82	-808.06	1,550.27	0.00	0.00	0.00
11,100.00	89.74	179.58	9,718.60	-1,576.82	-807.32	1,649.69	0.00	0.00	0.00
11,200.00	89.74	179.58	9,719.06	-1,676.81	-806.58	1,749.11	0.00	0.00	0.00
11,300.00	89.74	179.58	9,719.52	-1,776.81	-805.84	1,848.53	0.00	0.00	0.00
11,400.00	89.74	179.58	9,719.97	-1,876.81	-805.09	1,947.95	0.00	0.00	0.00
11,500.00	89.74	179.58	9,720.43	-1,976.80	-804.35	2,047.37	0.00	0.00	0.00
11,600.00	89.74	179.58	9,720.89	-2,076.80	-803.61	2,146.79	0.00	0.00	0.00
11,700.00	89.74	179.58	9,721.34	-2,176.80	-802.87	2,246.21	0.00	0.00	0.00
11,800.00	89.74	179.58	9,721.80	-2,276.79	-802.13	2,345.63	0.00	0.00	0.00
11,900.00	89.74	179.58	9,722.26	-2,376.79	-801.39	2,445.05	0.00	0.00	0.00
12,000.00	89.74	179.58	9,722.71	-2,476.78	-800.65	2,544.47	0.00	0.00	0.00
12,100.00	89.74	179.58	9,723.17	-2,576.78	-799.91	2,643.89	0.00	0.00	0.00
12,200.00	89.74	179.58	9,723.63	-2,676.78	-799.17	2,743.31	0.00	0.00	0.00
12,300.00	89.74	179.58	9,724.08	-2,776.77	-798.43	2,842.73	0.00	0.00	0.00
12,400.00	89.74	179.58	9,724.54	-2,876.77	-797.69	2,942.15	0.00	0.00	0.00
12,500.00	89.74	179.58	9,725.00	-2,976.77	-796.94	3,041.57	0.00	0.00	0.00
12,600.00	89.74	179.58	9,725.46	-3,076.76	-796.20	3,140.99	0.00	0.00	0.00
12,700.00	89.74	179.58	9,725.91	-3,176.76	-795.46	3,240.41	0.00	0.00	0.00
12,800.00	89.74	179.58	9,726.37	-3,276.75	-794.72	3,339.83	0.00	0.00	0.00
12,900.00	89.74	179.58	9,726.83	-3,376.75	-793.98	3,439.25	0.00	0.00	0.00
13,000.00	89.74	179.58	9,727.28	-3,476.75	-793.24	3,538.67	0.00	0.00	0.00
13,100.00	89.74	179.58	9,727.74	-3,576.74	-792.50	3,638.09	0.00	0.00	0.00
13,200.00	89.74	179.58	9,728.20	-3,676.74	-791.76	3,737.51	0.00	0.00	0.00
13,300.00	89.74	179.58	9,728.65	-3,776.74	-791.02	3,836.93	0.00	0.00	0.00
13,400.00	89.74	179.58	9,729.11	-3,876.73	-790.28	3,936.35	0.00	0.00	0.00
13,500.00	89.74	179.58	9,729.57	-3,976.73	-789.54	4,035.77	0.00	0.00	0.00
13,600.00	89.74	179.58	9,730.03	-4,076.72	-788.79	4,135.19	0.00	0.00	0.00
13,700.00	89.74	179.58	9,730.48	-4,176.72	-788.05	4,234.61	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 115H
Company:	Devon Energy	TVD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,800.00	89.74	179.58	9,730.94	-4,276.72	-787.31	4,334.03	0.00	0.00	0.00
13,900.00	89.74	179.58	9,731.40	-4,376.71	-786.57	4,433.45	0.00	0.00	0.00
14,000.00	89.74	179.58	9,731.85	-4,476.71	-785.83	4,532.87	0.00	0.00	0.00
14,100.00	89.74	179.58	9,732.31	-4,576.70	-785.09	4,632.29	0.00	0.00	0.00
14,200.00	89.74	179.58	9,732.77	-4,676.70	-784.35	4,731.71	0.00	0.00	0.00
14,300.00	89.74	179.58	9,733.22	-4,776.70	-783.61	4,831.13	0.00	0.00	0.00
14,400.00	89.74	179.58	9,733.68	-4,876.69	-782.87	4,930.56	0.00	0.00	0.00
14,469.85	89.74	179.58	9,734.00	-4,946.54	-782.35	5,000.00	0.00	0.00	0.00
Start DLS 1.00 TFO 179.85 - Inflection Pt (TU 115H)									
14,500.00	89.44	179.58	9,734.22	-4,976.69	-782.13	5,029.97	1.00	-1.00	0.00
14,531.22	89.12	179.58	9,734.61	-5,007.91	-781.90	5,061.02	1.00	-1.00	0.00
Start 2577.79 hold at 14531.22 MD									
14,600.00	89.12	179.58	9,735.66	-5,076.68	-781.39	5,129.39	0.00	0.00	0.00
14,700.00	89.12	179.58	9,737.19	-5,176.66	-780.65	5,228.80	0.00	0.00	0.00
14,800.00	89.12	179.58	9,738.72	-5,276.65	-779.91	5,328.21	0.00	0.00	0.00
14,900.00	89.12	179.58	9,740.24	-5,376.63	-779.17	5,427.62	0.00	0.00	0.00
15,000.00	89.12	179.58	9,741.77	-5,476.62	-778.44	5,527.03	0.00	0.00	0.00
15,100.00	89.12	179.58	9,743.30	-5,576.60	-777.70	5,626.44	0.00	0.00	0.00
15,200.00	89.12	179.58	9,744.83	-5,676.59	-776.96	5,725.85	0.00	0.00	0.00
15,300.00	89.12	179.58	9,746.36	-5,776.58	-776.22	5,825.25	0.00	0.00	0.00
15,400.00	89.12	179.58	9,747.89	-5,876.56	-775.48	5,924.66	0.00	0.00	0.00
15,500.00	89.12	179.58	9,749.41	-5,976.55	-774.75	6,024.07	0.00	0.00	0.00
15,600.00	89.12	179.58	9,750.94	-6,076.53	-774.01	6,123.48	0.00	0.00	0.00
15,700.00	89.12	179.58	9,752.47	-6,176.52	-773.27	6,222.89	0.00	0.00	0.00
15,800.00	89.12	179.58	9,754.00	-6,276.50	-772.53	6,322.30	0.00	0.00	0.00
15,900.00	89.12	179.58	9,755.53	-6,376.49	-771.79	6,421.71	0.00	0.00	0.00
16,000.00	89.12	179.58	9,757.05	-6,476.47	-771.06	6,521.12	0.00	0.00	0.00
16,100.00	89.12	179.58	9,758.58	-6,576.46	-770.32	6,620.53	0.00	0.00	0.00
16,200.00	89.12	179.58	9,760.11	-6,676.45	-769.58	6,719.94	0.00	0.00	0.00
16,300.00	89.12	179.58	9,761.64	-6,776.43	-768.84	6,819.35	0.00	0.00	0.00
16,400.00	89.12	179.58	9,763.17	-6,876.42	-768.10	6,918.76	0.00	0.00	0.00
16,500.00	89.12	179.58	9,764.69	-6,976.40	-767.37	7,018.17	0.00	0.00	0.00
16,600.00	89.12	179.58	9,766.22	-7,076.39	-766.63	7,117.58	0.00	0.00	0.00
16,700.00	89.12	179.58	9,767.75	-7,176.37	-765.89	7,216.99	0.00	0.00	0.00
16,800.00	89.12	179.58	9,769.28	-7,276.36	-765.15	7,316.40	0.00	0.00	0.00
16,900.00	89.12	179.58	9,770.81	-7,376.34	-764.41	7,415.81	0.00	0.00	0.00
17,000.00	89.12	179.58	9,772.33	-7,476.33	-763.67	7,515.22	0.00	0.00	0.00
17,109.02	89.12	179.58	9,774.00	-7,585.33	-762.87	7,623.60	0.00	0.00	0.00
TD at 17109.02 - PBHL (TU 115H)									

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Thistle Unit 115H
Company:	Devon Energy	TVD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3713.2' GE + 23.5' KB @ 3736.70usft
Site:	Thistle Unit Sec 22-27 Trac Pad	North Reference:	Grid
Well:	Thistle Unit 115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
SHL (TU 115H)	0.00	0.00	0.00	0.00	0.00	472,481.12	781,052.81	32° 17' 47.5452 N	103° 33' 27.1127 W
- plan hits target center									
- Point									
Inflection Pt (TU 115H)	0.00	0.00	9,734.00	-4,946.54	-782.35	467,534.58	780,270.46	32° 16' 58.6548 N	103° 33' 36.6424 W
- plan hits target center									
- Point									
PBHL (TU 115H)	0.00	0.01	9,774.00	-7,585.33	-762.87	464,895.79	780,289.94	32° 16' 32.5424 N	103° 33' 36.6371 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
2,250.00	2,250.00	0.00	0.00	Start Build 1.00
3,055.97	3,053.32	0.00	-56.59	Start 5034.14 hold at 3055.97 MD
8,090.11	8,037.73	0.00	-762.41	Start Drop -1.00
8,896.09	8,841.05	0.00	-819.00	Start 300.00 hold at 8896.09 MD
9,196.09	9,141.05	0.00	-819.00	Start DLS 10.00 TFO 179.58
10,093.47	9,714.00	-570.32	-814.77	Start 4376.38 hold at 10093.47 MD
14,469.85	9,734.00	-4,946.54	-782.35	Start DLS 1.00 TFO 179.85
14,531.22	9,734.61	-5,007.91	-781.90	Start 2577.79 hold at 14531.22 MD
17,109.02	9,774.00	-7,585.33	-762.87	TD at 17109.02